OUTGOING LTR NO.

91 RF 4045

DIST.	LTR	ENC
RETZKE, J.C.		
URLINGAME, A.H.	X	X
OPP, R.D.		
ROUCHER, D.W.		
AVIS, J.G.		
VERED, J.E.	X	X
ERRERA, D.W.		
ERRIS, L.R.		
RAIKOR, F.J.		
RANCIS, G.E.	X	X
OODWIN, R.	X	X
EALY, T.J.		
EKER, E.H.		
ENS, J. P.		
EELE, P. B.		
ERSH, J.M.		
IRBY, W.A.		
IRKEBO, J.A.		
EE, E.M.		
AJESTIC, J.R.		
ATHEWS, T.A.		
EURRENS, B.E.		
ORGAN, R.V.		
ORTH, P.		
ALMER, L.A.		
OTTER, G.L.	X	X
ZZUTO, V.M.		
HOADES, J.J.	X	X
AFFELL, B.F.		
WANSON, E.R.		
IEBE, J.S.		
ILKINSON, R.B.		
ILLIAMS, R. E.		
ILSON, J. M.		
OUNG, E.R.	X	X
ANE, J. O.	X	X
Fehweg, R.E.	X	X
Hobbs, F.D.	X	X
RADFile	X	X
Reg. History Spray Irrig.		
RWM Tracking	X	X
ORRES CONTROL	X	X
RAFFIC		

CLASSIFICATION:

UCNI		
UNCLASSIFIED	X	X
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE

M. Joyce

DATE 7-15-91

IN REPLY TO LTR NO.

LTR APPROVALS:

ORIG & TYPIST INITIALS

REF/fm

RF-46469 (Rev. 3/91)

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

July 17, 1991

91-RF-4045

Robert M. Nelson, Jr.
Manager
DOE, RFO

Attn: David P. Simonson

SPRAY IRRIGATION - JMK-0355-91

On May 29, 1991, EG&G Rocky Flats reported that the implementation plan to resume spray irrigation was under development. Environmental Management (EM) is currently considering the feasible alternatives as part of the design process, as well as compiling background information for each alternative. EM has compiled a history of the regulatory aspects of spray irrigation to determine issues which need to be addressed.

Attachment 1 provides an overview of the regulatory basis and requirements for spray irrigation, and identifies operational issues which should be resolved as part of the design process. We are asking that DOE continue the dialogue with Environmental Protection Agency (EPA) and Colorado Department of Health (CDH) personnel, as described in our May 29, 1991 letter, and include EM and subcontractor staff in such discussions.

EM is also aware of DOE's request that EPA review pond management practices for purposes of spill control (91-DOE-4447), and that DOE has asked to meet with the agency. Because the matters are so closely related, it is suggested that the agenda be expanded to include the issues raised in Attachment 1.

As pointed out in the attachment, the agencies must provide guidance on the resolution of operational issues related to surface water management and spray irrigation, to solve both the immediate management dilemmas and to aid the final design selection. To provide further support, we are preparing a report documenting results of monitoring from 1990 to early 1991. This report will emphasize the importance of maintaining the spill containment and stormwater capacity in the ponds, and will be available as soon as all data has been collected.

If you have any questions, please contact F. D. Hobbs at extension 7006.

J. M. Kersh, Associate General Manager
Environmental and Waste Management

REF:fm

Orig. and 1 cc - R. M. Nelson, Jr.

Attachment:
As Stated

Attachment 1

Spray irrigation provides capacity for reducing or eliminating surface water discharge from RFP. The goal of eliminating discharge from RFP, most recently reiterated as the Skaggs committee's Option B, originated in the 1979 NPDES Permit and the 1980 Environmental Impact Statement. EPA views spray irrigation as an acceptable water management tool, when operated using "good engineering practice", and had previously found that the RFP system was "well operated". However, concern about regulatory issues caused cessation of the practice in March, 1990. An analysis of the history and issues might be useful as a first step in reinitiating use of this water management tool.

Regulatory Basis and Requirements for Spray Irrigation

The NPDES permit issued in 1979 required that discharge from Rocky Flats be discontinued by July 1, 1984, and cited irrigation as a means of utilizing excess water. In the "Statement of Basis, U. S. Department of Energy, Rocky Flats Plant, Permit Number CO-0001333, Major Federal Facility Permit Renewal", received with a DOE letter of transmittal dated July 3, 1980, there is a discussion of discharges from the Sewage Treatment Plant (STP). It is stated that, "The final limitation is to have no discharge by no later than July 1, 1984. The new reverse osmosis plant and the planned reuse of product water as make-up water in the cooling water system made the elimination of Discharge 001 a practical alternative. Even if all the water cannot be used in the cooling water system, it could be used for irrigation or other purposes. The July 1, 1984, compliance date is based on the allowing time to determine the new water balance within the cooling water system and to develop a system for disposing of any excess water that cannot be used in the cooling water system."

EPA further addressed spray irrigation in a letter to DOE dated January 8, 1982. An attachment to this letter states, in part, "The land treatment by spray irrigation is well operated. However, we would like Rocky Flats to be aware that a two inch rain immediately following application of wastewater could result in runoff (containing wastewater) to surface waters. If Rocky Flats desires to totally prevent any possibility of discharge of pollutants, the Plant may want to take action to prevent runoff. Possible actions could include construction, such as a berm at the downhill edges of the spray field, or operating procedures, such as spraying in the morning when thunderstorms are less likely."

The current NPDES permit issued to RFP in 1984 was accompanied by a new Statement of Basis. This document, "Statement of Basis, U. S. Department of Energy, Rocky Flats Plant, NPDES Permit Number: CO-0001333, Major Federal Facility Permit Renewal (undated), states the following in Facility Description and Background Information: "Since 1979, the only discharges from Outfall 001 (Pond B-3) have occurred as the result of weather conditions causing the inflow to Pond B-3 to be temporarily greater than could be handled by the combination of temporary storage in Pond B-3 and by spray irrigation."

Another part of the same action indicates the permittee requested modifications to "allow a discharge from Outfall 001 when rapid precipitation, prolonged precipitation, or rapid snow melt exceeds the volume that can be held in Pond B-3, spray irrigated, or used for plant recycle. (The previous permit required that there be no discharge from Outfall 001 effective July 1, 1984.)" Subsequent discussion in describing changes in effluent limitations states that "The 'no discharge' requirements will be changed to the requirement that there be no discharge from Outfall Serial Number 001 except when weather result in the flow into Pond B-3 to be greater than can be handled by temporary storage in Pond B-3 and spray irrigation done in accordance with good engineering practices with the existing facilities." The no discharge

requirement in the previous permit was based on a combination of the desirability of eliminating the discharge of pollutants that could reach a drinking water supply (Great Western Reservoir), the statement in the 1980 Final Environmental Impact Statement that it was a goal to eliminate liquid discharges from the Rocky Flats Plant, and the apparent capability of the existing system to eliminate the discharge.

The NPDES permit issued November 26, 1984 required: "Effective immediately..., there shall be no discharge from Outfall Serial Number 001 (Pond B-3) except when weather conditions (precipitation, snow melt, and/or extreme low temperatures) result in the flow into Pond B-3 to be greater than can be handled by temporary storage in Pond B-3 and spray irrigation done in accordance with good engineering practice with the existing facilities." This permit condition was repeated in the NPDES Federal Facilities Compliance Agreement (FFCA). This agreement requires that "good engineering practice for spray irrigation shall be conducted in a manner to prevent surface runoff from the site of application: such irrigation shall not occur during freezing conditions or when the ground surface is unable to absorb the application."

This review of pertinent documentation may be incomplete because contractor records are likely not to be as complete as those maintained by DOE and EPA, since DOE is the holder of the permit and EPA issues the permit. However, it seems from the records quoted that DOE and EPA had a mutual goal of minimizing discharges from Rocky Flats, and spray irrigation was a key for that strategy.

Resolution of AIP/NPDES Issues

The issue of pond management must be examined in detail. Interpretation of the Agreement In Principle (AIP) has created several near crisis situations in the surface water ponds when water was being detained while CDH was "assessing the quality of water" before discharge. This is poor practice on several fronts. The dams are earthen berms designed to detain water for short time periods, with normal pond levels expected to be less than 10% of capacity. The design was intended to give maximum spill control and flood control capabilities. Even more important, the NPDES permit has language that would seem to require maintaining ponds at 10% or less of capacity. The exact language of the permit is as follows:

> "Effective immediately, the discharges from Outfall Serial Numbers 005, 006, and 007 shall be in accordance with the operational procedures specified below unless permission has been granted by the permit issuing authority for a deviation from these operational procedures."
>
> a. After each precipitation event that results in surface runoff into a control pond (Ponds A-4, B-5, and C-2), there shall be no release of water through the outlet works of the pond for at least 24 hours following the precipitation event or until the volume of water in the pond reaches approximately 10 percent of the storage capacity of the pond. (This does not apply to water that passes through a sand filter collection system attached to the intake of the outlet works.) During such periods water may be released through the outlet works either continuously or in batches in order to maintain at least a 90 percent emergency reserve holding capacity. (For purposes of this permit the flow of water over the spillway of a control pond is not considered to be a release of water through the outlet of the pond.)" (Emphasis added)